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PRACTICAL TREATISE

ON

ENAMELLING AND RETOUCHING

IN

PHOTOGRAPHY.

BY

P. PIQUEPÉ.



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PART FIRST.



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THE enamelling of photographs has remained for a long time almost a secret. I am sure that even now very few photographers are thoroughly acquainted with the process. Many would be able to say that to do it one must use glasses on which the prints are fixed by the aid of collodion and gelatine ; but their knowledge ends here. Others are ignorant of even the first step in these operations, by which a paper print can be made to look as solid and brilliant as if it were a ceramic enamel. At this one need not be astonished, as no special work has been yet published on the subject ; the short formulæ given here and there in photographic books, being far from sufficient, were rendering that work full of doubt and uncertainty.

It is only after having experimented with what appeared to me capable of giving better results, that I have succeeded in laying down certain and invariable rules for enamelling.

No doubt others besides myself have made experiments, but the results of these experiments have, for commercial or other reasons, never been made public, so I may say that this work is the first special and practical one, on this subject, that has been put at the disposition of photographers.

I shall describe minutely all the details, so that the operator, even the most inexperienced, will only have to follow to the letter all my instructions, to be certain of success.

DECEMBER, 1875.

PART FIRST.

CHAPTER I.

ON GLASSES, AND THE METHOD OF CLEAN- ING THEM.

CHOICE OF GLASSES.

IN photographic enamelling the first and most important thing is the choice of glasses. Notwithstanding their comparatively high price, I recommend the use of patent plate. We avoid thereby all the bubbles and other defects which are always to be found, even on the best glass, and which, exactly reproduced on the layer of the enamel, would take from it all its value. The surface of patent plate is more brittle and apt to scratch than other glass, but with a little care it can be kept perfectly for a long time. It should be thick enough to be able to bear easily the amount of pressure which it is necessary to give it for the application of the prints and cardboards. It must also be well ground at the edges to make the

collodion adhere to it, which otherwise, especially in a high temperature and an acid collodion, tends to partially peel off. Care in these details is, I repeat, of primary importance for the definitive result; and one ought not to hesitate about rejecting as improper for enamelling any rough or scratched glass if one wants to have a brilliant, regular, and polished layer.

CLEANING.

The cleaning of the glasses, in this as in other photographic operations, is one of the most difficult operations. What sorrow and trouble are often caused in that way! Operations properly conducted; graceful position obtained, sometimes with great difficulty; perhaps an admirable negative so far as detail and modelling are concerned—all useless, all trouble lost, if you have not taken sufficient care about that most simple of manipulations, the cleaning of the plate. It is the same thing in enamelling. I cannot insist too much on this point. All the drawbacks to which enamelling has been subjected arise, in a great measure, from negligence in this detail. People accuse the gelatine or the collodion, just as they accuse their silver bath or their developer, and they are generally wrong.

Very often dirt is produced on the glass by damp cloths being used to rub them, or by want of care on the part of the operator. Always keep your hands, as well as the cloths you rub with, perfectly dry; avoid a damp room, either for cleaning plates or for keeping

them in their boxes afterwards; in winter warm the cloths; take care that no greasy matter touches them; and then you will be sure of success.

Notwithstanding the number of methods already known, I recommend the two following, either of which acts with great rapidity. Prepare the following solution :—

Alcohol	...	...	...	100 parts
Tripoli	...	...	...	5 „
Iodine...	...	...	...	1 part

Shake well before using. Pour a few drops on the glass; rub well with a lump of silver paper all over until quite dry; then with a wash-leather rub well, but not too hard, and in a few seconds the glass will be clean. This can be ascertained by breathing on it, when the portion moistened by the breath should be perfectly free from marks of any kind. This done, the plates may be stored for use in clean grooved boxes.

Instead of the above solution, ammonia may be used. Pour a few drops on the plate, and rub well with a very fine cloth; afterwards, with a chamois leather, remove every trace of ammonia, and polish with a little alcohol. This last method is not quite so rapid as the other, but it has this advantage, that no particles of dust are left on the edges of the glass.

CHAPTER II.

PRELIMINARY OPERATIONS.

THE first operation consists in interposing between the collodion and the plate an isolating substance, which will facilitate the transfer of the finished print. There are several ways of doing this, but it will suffice to mention one which I consider the simplest and safest.

TALC.

I generally use precipitated chalk. Proceed as follows:—Take a piece of old calico, rather fine; pour into it a certain quantity of talc; tie up the corners, and squeeze it all to the centre till you have got a ball nearly as big as an egg, and having fixed the plate in the holder, it has to be rubbed all over with the talc, with a rotary movement, from the centre towards the edges, till quite brilliant. The operation is then complete, and the plate ready for use. The same lump of talc can be used over and over again till it is all used up.

This very simple operation can be done to a number of plates in a very short time, and is always successful, provided that it is done, like the cleaning of the plates, with very dry hands and cloths. Instead of talc, a solution of wax in ether may be used, or any fatty substance which would produce the same effect. Either of these methods may be tried, and the operator will choose the one that suits him best.

In a chapter on the manufacture of the special collodion, I will describe a manner of proceeding by which both may be dispensed with.

HOW TO KEEP THE COLLODION ON THE PLATE.

The manipulation now to be described is one that has been for a long time neglected. People occupied themselves much more in finding out how to transfer the print from the glass, than in discovering the means of fixing it there so that it should only come off when it was wanted to do so. There remained thus a great problem to be solved before success was arrived at. In fact, the collodion was spread over the surface of the plate, and, with nothing to hold it there, cracked at a certain temperature, and yielded to the attraction of the gelatine with which the prints and cardboards had been fixed. The prints peeled off the glass of themselves when half dry, and all their brilliancy was disappearing by the time they had become thoroughly dry; and at the end of a couple of

hours the surface was covered with a mass of specks and lines, and the enamel entirely destroyed.

The remedy for this is very simple, which is, perhaps, the reason why it has been so long before it has been discovered.

This is how I have succeeded in fixing enamels on the glass, and that so firmly, that even at a temperature of one hundred degrees, they will not peel off, if the instructions which I give here, and in the chapter which treats of fixing prints and cardboards on the plates, are carefully followed. This is the simplest way: Having rubbed the glass with the talc before putting it away in a rack or box, take a damp cloth and pass it round all the edges of the glass to the depth of about one-sixth of an inch, so as to remove the talc in the place where the damp cloth has been passed; thus the collodion will be firmly fixed on the edges. The air not being able to get in between the glass and the collodion, the latter will not be liable to detach itself, and will not come off without being cut.

The second method is more complicated, but just as good. It consists in passing round the edges of the glass, instead of a damp cloth, a brush dipped in albumen; great care must be taken not to let any albumen drop from the brush on to the other portions of the plate, as the collodion will adhere with great firmness wherever the albumen has passed.

Everybody knows how to make albumen. The

whites of three eggs beaten well will be enough for 400 or 500 plates, and it can be kept eight or ten days by adding a few drops of ammonia to it.

It will be easily seen what an advantage is gained by following either of these methods of working, as the prints may then be left on the glasses for any length of time, the greater or less amount of brilliancy on the finished prints depending entirely on their being thoroughly dried before transferring. The plate, having been treated as above, is put into a rack to dry. If the damp cloth is used, it will be ready for collodionizing in five minutes; if it is coated with albumen, it will take half an hour-to-dry.

PREPARATION OF THE COLLODION.

The collodion I generally use is made as follows :—

Alcohol	...	...	... 400 parts
Sulph. ether	...	...	... 600 „
Gun-cotton	...	...	... 8 „
Castor oil	...	...	8 or 10 drops

Leave it to settle, and decant.

For general work I use the collodion as fluid as possible; the easier it flows over the plate the better, as less is used, and the result is better. As it thickens, add a little ether to it, and when this has been done two or three times, add to what is left the same quantity of new collodion, and so on.

I have already said that it was possible to transfer the print without either talc or wax. This is how it is done: add twenty-five drops of pure hydrochloric acid to each quart of collodion. By this means a little time and labour are saved; but I much prefer not to add any acid to the collodion, as it is sure to decompose, and to it I attribute a whitey appearance which sometimes comes on the layer of the enamelled print. It is also very apt to crack, especially in hot weather, and would produce many troubles if it were unnoted. However, it is worth trying; but then a line of albumen should be run round the edge half-an-hour before collodionizing.

COLLODIONIZING.

Begin by coating the plate that was first rubbed with the talc, which will be the most dry. The surface should be very lightly dusted, to get rid of any particles of dust that may have adhered to it. Then pour the collodion on it in the ordinary way, taking care that every part of the plate is covered on the edges and on the corners, not leaving any space uncovered between it and the albumenized part without talc, or the print would begin to detach itself in that spot. The layer of collodion should be very fine and transparent; take care that no dust remains fixed on it; let the glass drop for a few seconds into a second bottle, into which put a funnel with a plug of very clean cotton-wool; the collodion

filtering through this will always be ready for use if the bottles for the collodion are always very clean. Proceed with the other in the same manner, and leave them to dry for about half an hour.

CHOICE OF GELATINE.

It is of great importance to get the right sort of gelatine. The enamelling process has been accused of turning the photographs yellow, but this can only happen when bad gelatine is used. I generally use photographic gelatine No. 1, prepared by Nelson and Co. especially for photographic use. I have found that this gelatine used by itself gave certainly a very transparent film, but too thin and delicate, therefore the mixture with another thicker gelatine seems to me very convenient, and after numerous experiments I have found that *amber gelatine* by the same maker, mixed half and half with the other, gives the best results. The film thus obtained is transparent, solid, flexible, and brilliant.

White gelatine in sheets prepared in France is also very good for this sort of work, and can be used by itself, and gives very even films, but is somewhat dearer than the other.

PREPARATION OF THE GELATINE.

Put into a very clean tray a certain quantity, whatever will be sufficient for number of plates to be done, taking equal quantities of photographic gelatine No. 1

and the amber gelatine, and add sufficient cold water to cover it. The photographic gelatine No. 1 will become quite soft by the soaking; the amber gelatine, on the contrary, will soften very little, but will swell out to double its size. Leave to soak for several hours, and then put into a saucepan which stands inside another saucepan full of water on a quick fire, stirring from time to time.

PRELIMINARY COATING OF THE PLATES.

Till now it has always been thought that what gave brilliancy to the surface of the enamelled print was the collodion, gelatine being only employed for fixing the prints and the cardboards on the plates; and it was thought that the thicker the collodion was used, the more solid and brilliant would be the layer. But this is not the case, as, whether it be thick or thin, the surface of the collodion pellicle remains the same—its thickness does not increase its brilliancy or its strength, for, as everybody knows, it is essentially fragile. It makes creases and lines under the action of damp, and these creases cause it to lose much of its transparency. Therefore it will be easily understood that by increasing the thickness of the pellicle these wrinkles or lines will become deeper and more visible, and the brilliancy and transparency of the prints suffer still more. This it is impossible to avoid except by giving to this delicate pellicle a substance stronger than itself to support it, and which, by its

strength of tension, will prevent all these irregularities. Therefore—to repeat what I have already said—the collodion should be used as fluid as possible, looking upon it only as a temporary support to the prints between the moment when they are put down upon the plate till they are taken off again—support which it is impossible to do without, as it prevents the gelatine from adhering to the glass. The collodion certainly plays an important part; but it does no more than this.

From what I have said it will be seen that the collodion pellicle will be brilliant and strong in proportion as it is reduced to the thinnest possible state, and the supporting substance made stronger. Gelatine employed in thick layers, as I shall describe, fulfils perfectly the necessary result.

Filter the gelatine through very fine linen into a bottle strong enough to stand heat, and, having filled the bottle up to the top, wait a few minutes till all the air-bubbles have come to the top, and then blow them all off. Then have a very clean dish on a level table, and raise up one end of the dish by means of a piece of wood, or anything else, put underneath; pour the gelatine into it very slowly, so as to avoid air-bubbles, which it would be then impossible to turn away (this may be done by pouring in against one side of the dish), and fill it till the liquid just covers the bottom of the raised end. In this way there will be a bath of about one inch at one end and one-sixth of an inch at the other. Then take one of the collodionized plates

by a corner in the left hand, lay the bottom of the plate into the raised end of the dish, and, having in the right hand a silver or ebonite hook with which to hold the top of the plate, lower it slowly till the liquid has covered the whole surface, not allowing any of the gelatine to get on the back; then lift up very slowly, taking care that the hook does not scratch the collodion, and, after having drained it for a moment, lay it flat on a shelf well protected from dust, and proceed with the others in the same way. This operation must be done in a good light, and very slowly. This latter point is of great importance, as if the plate is lowered into or taken out of the gelatine too quickly, air-bubbles would be formed on the liquid, and would stick to all the plates afterwards. The dish must be kept always with about the same quantity of liquid in it, and must be replenished by a little at a time out of the bottle, which will be kept hot in a saucepan of hot water. If these instructions are closely followed the result is infallible, and perfectly level films will be obtained.

I should not advise the use of a brush in this operation, as the result is not so good. Either hairs come out of it, or the collodion may get scratched by it, and there is generally a want of evenness in the film.

This may appear difficult at the first trial, but is really very easily done, and only requires a little care and attention. The plates are then left to dry in a warm room for ten or twelve hours. When quite dry,

store them in boxes for use ; they will keep good for a long time.

A quart of gelatine will coat 250 plates, and what is left may be put aside for further use. This one coating is sufficient to give a very brilliant effect to the print, and will be strong enough to hinder the collodion wrinkling. It also gives a very solid surface, so that it will be very easy to rub and squeeze the prints on it without fear of scratching the film, which would render very long and difficult the following operations. But, if required, the plates may receive two, three, or even four successive films of gelatine, leaving plenty of time to dry between each coating. The greater the number of films the plate receives, the greater will be the depth, strength, brilliancy, and delicacy of the enamel.

CHAPTER III.

ON RETOUCHING THE PRINTS BEFORE ENAMELLING.

LET us now leave the plates which are prepared and ready to receive the photographs, and occupy ourselves with a very important work which has been much neglected for a considerable time. I mean the retouching of prints before enamelling them. Many photographers who would have liked to devote themselves to this process have been obliged to give it up on account of the difficulty of getting rid of specks or flaws in the prints either before or after this operation. If the print is touched with ordinary colour, the gelatine in which it has to be dipped will melt it all away, and the finished print reappear with all its defects. I need not speak of the bad effect that is caused by touching on the surface of the enamel, as that, of course, spoils the whole effect. I have occupied myself a great deal in this matter,

and think I have found out a method which is both practical and certain.

First of all, it must be conceded that all retouching on the enamel surface is impossible, as no mixture of gum, or glycerine, or oil with the colour would give anything like sufficient brilliancy. Whatever has to be done must be done previously, and the enamelling be the last operation of all.

TOUCHING PRINTS OF A BLUE TONE.

When the tone of the prints is blue—which is often the case—the best way is to use very soft pencils, cut to a fine point. Faber's BBBB and BBB are the best for this. The print should be laid on a glass plate, and the point of the pencil lightly applied to the centre of the spot to be removed. The weight of the pencil will be sufficient to cause it to leave an almost imperceptible particle, which can be spread over the whole spot, and any superfluous lead lightly removed with a camel-hair brush. A more or less strong pressure on the pencil can be used, according to the nature of the spot to be removed. The pencil will not make any hole or dent in the paper if the print is laid on a perfectly flat and well-polished surface. Generally speaking, all retouching done with a pencil stands the enamelling process, but as one cannot have lead pencils in all the photographic colours, it is only possible to use pencils for blue-toned prints.

RETOUCHING SEPIA OR RED-TONED PRINTS.

For prints of a warm tone a brush must be used. Dilute the colour with a little gum and a drop of glycerine, taking care that the colour used is the same as the print, but lighter rather than darker. Every touch with the brush must be immediately covered with a drop of ordinary plain collodion, the same as that used for covering the plates. Dip a brush into a bottle or glass containing a little collodion, and let a drop fall from the brush on to the place that has been retouched, without letting the brush itself come in contact with the print. The touches are thus protected by the pellicle formed by the collodion when dry. If the print should require a very elaborate touching all over, it will be better to coat the whole surface with the collodion when the touching is finished, and let it drain in the same manner as a glass plate. This process is infallible. The dark spotty appearance which comes over the print directly after is of no consequence, being merely caused by temporary damp from the ether and alcohol. The only drawback to this method is that it makes the print rather stiff, and more difficult to enamel; but it only requires then a little more care. Even this inconvenience may be in a great measure avoided by using a very fluid collodion.

A method of touching with albumen has been

spoken about, but I only give this from memory, as it has never quite succeeded with me. The colour is mixed with albumen, and as each spot is touched out, cover over the touches with a drop of alcohol, which coagulates the albumen, and makes it insoluble in gelatine. This method of procedure is as complicated and takes as long as the other, and is not equally certain, for the albumen does not become coagulated unless the alcohol touches it while it is still wet; if not, it has no effect on the albumen, and hence the result will be good sometimes, but not with an infallible certainty.



CHAPTER IV.

GELATINIZING.

PREPARATION OF THE GELATINE.

Put to soak—

Gelatine	...	...	...	150 parts
In water	...	...	...	2000 „

and leave it several hours, stirring every now and then, and melt in a saucepan. I give here the exact method in which I work myself, and which appears to me to be the most convenient, especially where there are a great number of prints to be enamelled at a time. Everything should be put beforehand in its place, so that the work should proceed rapidly and with certainty; for I may say that a proper method in working is invaluable.

OPERATION.

Put on the left-hand side, and within reach, the box containing the collodionized and gelatinized plates; near this box have an empty rack for the plates, with the prints on them to be put into. In another place put on a hot stove a large and deep tin dish full of

water. The dish will have two handles, to be removed with facility. In the hot water in this dish stand two little clean porcelain dishes, one alongside of the other. Have a little sponge always ready in the hot water, and a squeegee. Filter the dissolved gelatine into these two little dishes, taking care to avoid air-bubbles as much as possible. Immerse a certain number of prints in the right-hand dish; then take one of the plates, and lay it, with the collodionized side in contact with the gelatine, in the left-hand dish, which is kept specially for this use. Raise the plate immediately, so that the preliminary pellicle shall not become softened, and lay the prints with the faces on the collodionized surface, holding them in the places with the thumb of the left hand, and with a squeegee rub (not too hard) on the back of the prints, to get rid of the excess of gelatine and bubbles. Turn up the glass; wash it over with the sponge, to make sure that there are no bubbles left; if there are, rub again with the squeegee till they are gone; then put the plate to drain in a rack. This operation should be done quickly, so as not to give the gelatine time to coagulate before having driven out the excess of it with the squeegee. You must not forget to dip the plate into the first dish of gelatine before putting the prints on the film, as otherwise the prints would stick immediately, and it would be impossible to get rid of bubbles. Continue in the same way till all the prints have undergone the same operation, and put the plates one

after the other in a rack, of which the grooves should be very wide, so as to avoid rubbing the pellicle, which is very soft and tender at this stage. The liquid should not be too hot, or the prints will be sure to turn yellow; therefore, when necessary, lift the dish off the stove, and stand it on a table for a time.

A plate $6\frac{1}{2}$ by $4\frac{1}{2}$ will take easily two card-sized prints or one cabinet. For larger sizes than this I would recommend only to put one print on each plate. It is also advisable to have a squeegee for each size of print, so that the excess of gelatine may be removed from the whole surface by one operation, and with more regularity. The size of the squeegee should be the same width as the enamelled print.

We have now to think of placing at the back of the prints the cardboards by which they will be supported. A Bristol board not too thick, and well rolled, is required for this. Reverse the rack, and begin with the first plate. The manipulations are somewhat the same as before. Immerse the cardboards in hot water to soften them; then dip them in a dish of gelatine in which the prints were placed; take one of the plates, lay a cardboard on each print, hold it down with the thumb of the left hand, pass the squeegee over it, and lay the glass flat on a shelf to dry. This operation is, it will be seen, much simpler than the first; but some precautions are necessary to insure complete success.

The cardboard must always be cut a little smaller

than the print. This is a most important point, as it prevents the enamelled print coming off the plate too soon. If the mount were ever so little larger than the print, even only on one side, the result would not be successful. In fact, the cardboard, softened by the hot water and the gelatine, yields very readily to the pressure of the squeegee. It adheres as firmly to the surface of the plate as to the print; but as soon as the gelatine begins to dry, the card resumes its original flatness, the print begins to force up its edges, and it brings with it the pellicle of gelatine and collodion, which thus becomes partially detached in that spot. It would be otherwise if the mount were large enough to touch the albumenized line beyond the print, as then it would be firmly held by the collodion, and could not detach itself.

The safest plan, then, is to cut the mount smaller than the print. It will never detach itself, but will require to be cut off.

If the mount extends beyond the print, be it ever so little, in that spot it will begin to peel off.

If it extends all round the print for about one-sixth of an inch, it may be safe; but even then it will tend to come off if the talc has not been removed from the edge, or if the albumen line is not continuous.

It is, therefore, better to enamel the prints before trimming them, as there will be then always a margin to allow for the mount being a little smaller. If it be necessary to enamel prints that have been already

trimmed, put behind them one mount cut to the size of the plate, so that the edge shall come in contact with the line of albumen.

If, at any time, being well accustomed to the work, one was, perhaps, short of glasses, one might trim the prints, putting three on the plate instead of only two, two lengthways and one across, covering all three, as I have just described, with one mount same size as the plate; but I would only advise this in exceptional cases, as it is a somewhat difficult operation.

For large prints, even whole sheets, the working is just the same, only it is impossible to hold such large plates in one hand. This is the best method to follow: put on a table a dish much larger than the plates, lay flat in the bottom of it the plate which has already been dipped in gelatine, lay the print on it, and pass the squeegee, beginning from the centre. The dish will receive the excess of gelatine without puddle round the body; the plate will be better able to resist the pressure of the squeegee; the bubbles be more certainly driven away. For large surfaces I advise at least two layers of gelatine on the collodion, so as to gain more strength and brilliancy.

HOW TO PUT A DOUBLE BACKGROUND, EITHER
TINTED OR ORNAMENTED, ON A FINISHED PLAIN
PRINT, AND ENAMEL THE WHOLE.

This operation will be easily understood, and is sometimes useful, especially in winter, when printing

is slow. Get several negatives taken from shagreen papers of different kinds, this sort of background having a charming effect in enamels. Prints are taken from these negatives, and put away for use. Papers tinted to different shades of colour may be also used.

Having got a plain print, and wishing to put it on one of these backgrounds, this is the way of proceeding: cut one of the pieces of paper to the size of a print, with a print-trimmer; cut out the centre either to an oval or with rounded corners, according to the shape you wish to have, and when gelatinizing immerse the background at the same time as the print into the dish of gelatine; arrange the one on the other in the right place; lay them both on the collodionized plate, the background first, then the print; hold them firmly in their place with the left thumb and squeegee until the centre of the print adheres to the plate, and the thickness of the double background placed underneath is seen in relief on the back of the print. The mount is applied in the manner previously described. This is a delicate, but not a difficult operation, and the result is surprising. There is no extra thickness or line of demarcation between the print and the background, which one would naturally expect to see, and when it comes off the plate it would be impossible to distinguish it from another print obtained with a double background printed on it.

HOW TO DRY ENAMELS.

Put the plates alongside each other on shelves to dry. It is impossible to say how many hours they should remain in this state, as it depends on the time of year, the state of the atmosphere, and the temperature of the room in which they are put to dry. In very hot weather choose a very airy room, and not too warm: under these conditions they will dry with the greatest amount of brilliancy and delicacy. The weather in winter is not favourable to these operations. If the plates are left in a cold room they will take quite two days to dry; if the room is too much warmed the gelatine coagulates with difficulty, and the results are less brilliant. The heat from the stove is the best, but it should not exceed from thirty to forty degrees. Under these conditions they should never take more than twelve or fifteen hours to dry. Damp must be specially guarded against; a cold but dry room is much better than one that is warm but damp.

An enamel can never be too much dried; it is better to leave it much too long on the glass than to take it off a little too soon, as if there is ever so little damp in it the surface will be sure to become mottled and uneven. As soon as the mount is quite dry to the touch, and the drops of gelatine round the edge of the glass feel hard, the transfer may be proceeded with. With the point of a pen-knife cut the pellicle inside the albumenized edge, insert the

knife so as to get hold of the print between it and the thumb, and raise it gently. If it is sufficiently dried the pellicle will, in detaching itself, make a dry hard sound like tearing a piece of parchment or calico. The first plate will show the state of the rest; if it does not make this sound, they are not yet ready for transfer.

DRYING IN THREE HOURS.

It is sometimes useful to be able to enamel and finish off some prints in a few hours. This may be easily done, but the brilliant surface may suffer unless certain precautions are taken. The finished plate is left for an hour or two to allow the gelatine to begin to set, and then brought gradually nearer and nearer to a very hot fire, but taking great care not to heat it too suddenly, for fear of dissolving the gelatine. The mount will be turned towards the fire, and when it begins to get warm bring it gradually nearer the fire until the glass gets very hot; then take it a little way to cool, and repeat the operation three or four times, when the print will be dry. The glass must be left to get cold before transferring the print. Prints carefully treated in this manner are just as brilliant as if they had been left to dry for twelve or fifteen hours, but the operation is too tedious and long to be followed except for a few prints.

ACCIDENT TO BE AVOIDED.

I think I have already said, and I advise again, that the print should be very gently and slowly lifted from the plate, as if there were any flaw in the preliminary coating of gelatine, the print would stick in that place, and it would be impossible to get it off without tearing. Stop, therefore, if there is the least resistance, and if the print is stuck, plunge it, glass and all, into a dish of hot water, and in a few seconds the gelatine will dissolve, and the print come off of itself. Remove the collodion pellicle and the mount, and it will be ready to gelatinize over again. This remark only applies to beginners, and is quite useless to a practical worker.

CLEANING THE GLASSES AFTER GELATINIZING.

To clean the plates, and remove from them any particle of gelatine that may adhere to them, put them in a dish and pour hot water on them; rub each one with a soft cloth till all traces of albumen and gelatine have disappeared, then put in a rack to drain. If this washing should be very thoroughly done, there will be no difficulty in polishing them afterwards in the manner which I have described in the first chapter.

CHAPTER V.

MOUNTING.

CUTTING.

AFTER prints have been enamelled they must be perfectly even, and free from any spot or defect. Those which are plain printing may be considered finished. There is nothing else to be done to them except to trim the edges, if they have been gelatinized on sufficiently thick mounts; but I do not consider that the work in this stage looks neat enough; in the first place, unless done by a very skilled worker, it is difficult to keep the backs of the mounts clean; and secondly, as the print is enamelled all over, it cannot well be handled without some contact taking place between the surface and the hands, which ought to be most carefully avoided. Besides, one cannot use tinted or gilt mounts, the materials with which they are made causing the tint to dissolve rapidly when

put into water. It is, therefore, better to follow the system I am about to describe in order to give the prints a neater and more artistic appearance. Cut all the enamelled cards of the size required, using strong and sharp scissors, and a cutting-glass made of thick glass, and the same size as the prints are to be cut to; then take a print in the left hand, and with the right lay upon it the cutting glass, and when it is brought to the right spot, hold the two together with the left hand, and cut round the edges with the right.

Sometimes, while using the scissors, it will be found that the enamelled pellicle is disposed to separate itself from the print at the edges, the reason being a certain greasiness on the surface of the print, which hinders the gelatine getting a firm hold on it. Therefore it is very necessary to avoid fingering the prints much. Any prints that are known to be dirty may be soaked for a few minutes in slightly salt water, and rinsed afterwards in fresh water; this, of course, before gelatinizing. Prints with a plain background are now put aside, those with a double background having to undergo another operation.

EMBOSSING.

The object of this is to place in relief the part of the print occupied by the person or subject represented, while the background—either lighter or darker, plain or figured, as the case may be—remains flat, thus enhancing the value and brilliancy of the whole.

There are several ways of doing this. This is the simplest and best:—The embossing is effected by a strong press of Marion's design, constructed as follows: Several forms in polished copper, oval, or with rounded corners of different sizes, which all fit on the top of the press, running in two grooves below a driving bolt, covered with india-rubber, which goes up and down with the pressure of a screw turned by a wheel. The print is put underneath the deep form, and held in its place with the left hand, while with the right hand the wheel is turned. The driving bolt is gradually raised till it touches the print, whose edges are kept on the flat part, while the centre is pressed outwards by the driving bolt. Too much pressure should not be used, or there would be a risk of cracking the print. Leave for a few seconds in the press, and proceed with the others. In this way the cutting and the embossing may be done at the same time. As soon as one is cut, slip it into the press, and while it remains there, cut the next one, which can be pressed in its turn. A saving of time is thus effected.

There are several other kinds of presses for embossing, but I know of none more rapid. Wooden boxes are used sometimes. They are divided in two compartments; the bottom cut into a driving bolt, and the top part hollowed out to fit it. A polished steel form slides on little iron points, which are fixed to the four corners of the

driving bolt. The print is slipped under the hollow form, and the cover of the box put on altogether very strong by being pressed. This is a more complicated way than the other, and the prints require longer pressure.

It sometimes happens, especially in summer, that the surface of the enamel cracks at the line of demarcation between the flat and the raised part of the print. This may easily be hindered for other prints by adding a few drops of glycerine to the gelatine, both for the preliminary coating, and to the gelatine in which the prints are dipped. The glycerine gives a greater elasticity to the enamel, but it should be used with caution.

MOUNTING.

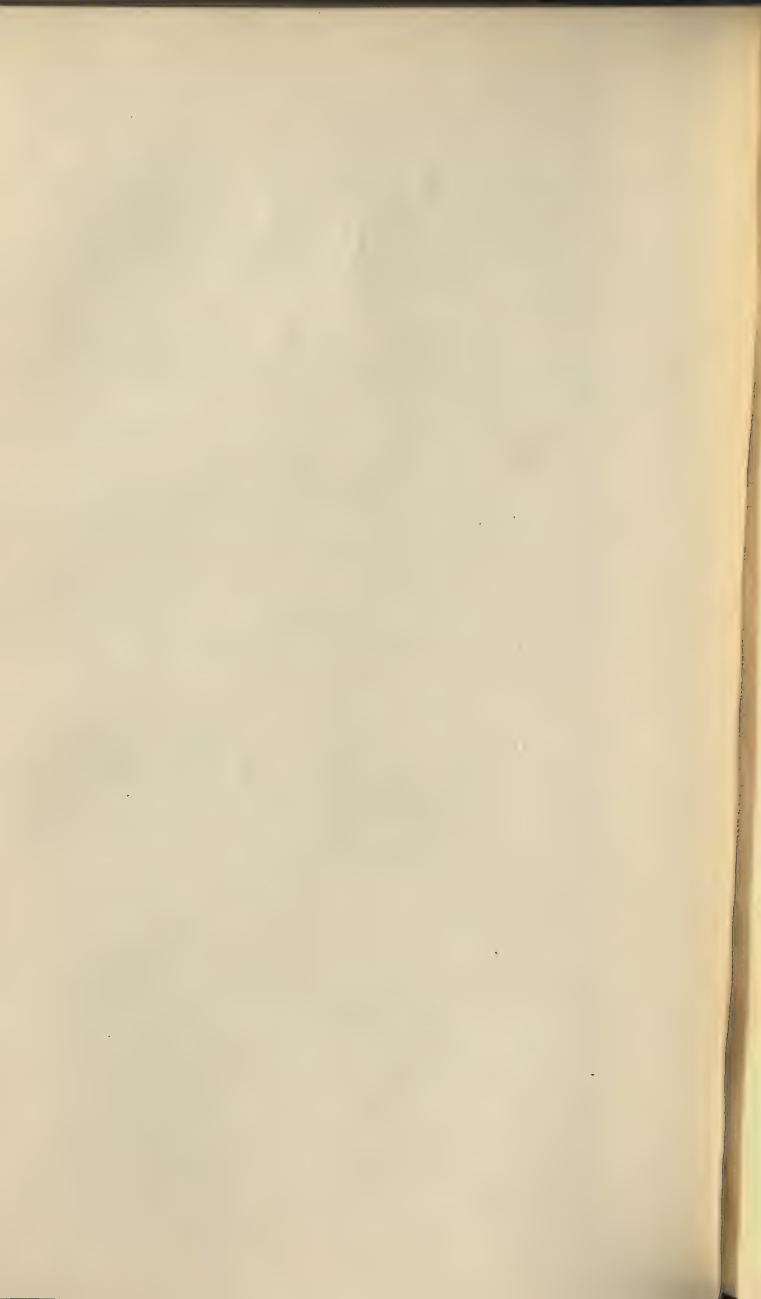
The cardboards used for mounting should be very strong, and at least twice as thick as those used for ordinary photographs. All round the edge of the back of the print pass a line of hot glue, about half a centimetre deep, and in the centre of the mount lay a piece of cardboard folded up small, just enough to keep up the raised part of the picture; lay the print on the mount, hold it in its place by means of wood cut out in the middle, so as only to bear upon the edge, and a weight on top of all to secure perfect contact.

Then paste behind the top edge of the mount a piece of silver paper, tinted either blue or rose colour, which will fall over, and protect the face of the enamel.

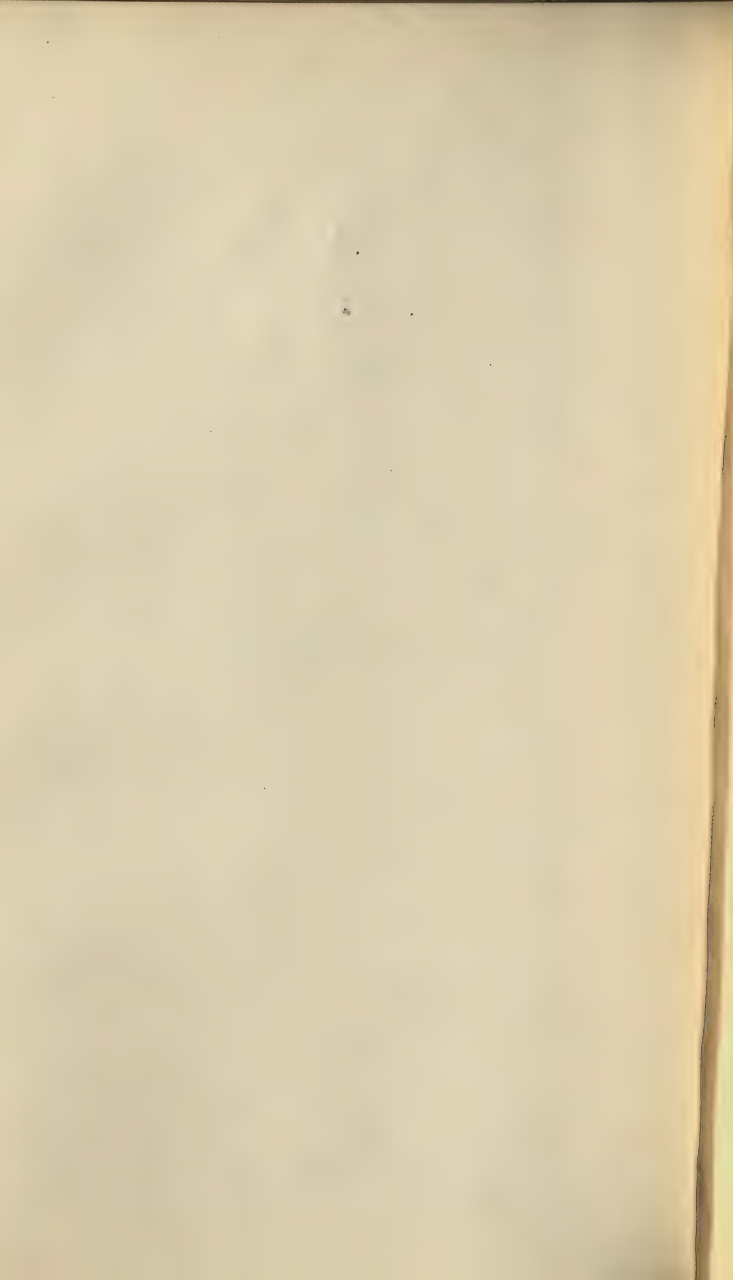
They can, finally, be stored in grooved boxes made especially for that purpose, or laid one on the other, with a cut-out cardboard, as thick as the raised part, between each.

These last precautions, though they may appear superfluous, are necessary after all the previous long and minnte operations.





PART SECOND.



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THE retouching of photographic negatives has become much more general during the last few years. I shall not here seek to prove the practical utility of it; the favour with which the custom has been received by photographers in general is a sufficient proof of it. Unfortunately it has been in this as in all other arts: a great many indifferent operators, imagining that it was sufficient to work more or less on a face, to add or take away in certain places, without discretion, cleverness, or taste, have rushed into this work, and have produced results so grotesque and ridiculous, that there are even now experienced persons who deny that retouching is a means of improving their work. This is certainly a mistake, because, though there are bad retouchers, yet there are very clever disciples of this new art. And this is so true that, in many studios, the operator trusts entirely to the skill of the retoucher. He troubles himself very little with his manipulations; he

cares little whether his sitter is well or badly-lighted ; whether his negatives are free from spots or stains ; if the negative is sharp and not too hard, the retouching, he thinks, will do all the rest. In other studios the operator is instructed to produce thin negatives without any vigour, but over-exposed and full of detail ; no bright lights are left, the whole is flat and dead, and the retoucher must give life to everything. This I do not hesitate to say is all wrong. Probably, in this way, the public get prints which flatter their caprice ; but an experienced eye will soon detect the faults of these productions, and will condemn them at once from an artistic point of view, for everything is rounded and cut off ; the figure and the background are stuck one on the other ; there is no depth, no atmosphere, nothing but a mechanical work, sometimes cleverly done, but powerless to give truthful pictures.

Looking at it in this way, it is true that retouching has done more harm than good to photography ; but it must be acknowledged that this sort of work is not general. There are photographers who have appropriated this new means to their requirements, only using it as a remedy for inevitable faults in photographic manipulations. These persons are right, and we all admire their works.

Therefore I cannot lay it down too clearly that retouching, even when done by a real artist, should be considered only as a necessary continuation of very

careful work; not that the part of the retoucher is inferior to that of the operator, but that the two should work so well together that the final result will be arrived at through the cleverness of both.

It is not everybody who can touch well. It is a work requiring a great deal of taste, lightness of hand, close application, and great patience, all of which qualities few people possess. But every photographer is capable of correcting in his negative all faults which may occur, no matter how skilled the operator may be.

These are the means which I shall describe as clearly and practically as possible in these following pages, avoiding entering into superfluous details of science—or, rather, of anatomy—a knowledge of which being in no way indispensable, and which could only puzzle the learner, and in all probability lead him astray. Perhaps even a clever retoucher may learn some hints from them, while those who wish to learn the art will find, I am sure, clear explanations, and will be enabled to succeed at once, without going into a too exaggerated style of work.

CHAPTER I.

MATERIALS NECESSARY FOR NEGATIVE RETOUCHING.

THE first thing wanted is an easel on which to work. This should be a piece of fine ground glass in a frame, on which the negative is placed. The bottom of this frame has hinges as well as the top, which retain a cover of wood kept open by means of small supports, which are lying on the sides of the frame of the ground glass. The necessary slant is given to this by means of two other supports, entering at will into some notches on the edges of the surface of a flat and square box, of which the middle is covered by a looking-glass reflecting the light under the negative. Several carriers, same size as the ordinary photographic glasses, and fitted one into the other, stop completely the light round the negative. A little moveable rule goes up and down in front of the ground glass, and serves as a rest for the hand of the retoucher.

This easel should be put upon a table before a window with a north aspect. As there should be no light except what illuminates the negative, a black blind should be thrown over the top, and to fall down each side. There are easels sold on purpose, and provided even with wooden shutters, which are kept open with hooks fitting into the top shutter. The retoucher is thus enclosed in a box, and gets no light except what comes through the negative.

The choice of pencils and brushes is very important. The Grossberger and Kurz pencils, manufactured in Germany, I find the best. They are numbered, according to the strength of the tints they give, light or dark, No. 1 being the softest, and 2, 3, or 4, harder. These four numbers are sufficient for all work. For cutting these pencils use a little file, on which they should be rubbed, or very fine emery paper cut into narrow slips.

The brushes should be sable, and very soft. It is very difficult to get good brushes, so they should be chosen with great care. They must be pretty thick, not too long, and with a very good point. All this will be easily found out by dipping them in water and bending them about. If a brush, then, at once make a fine point, it is a good one.

The two colours most required in negative retouching are indian ink and light blue. The first is the most opaque colour, but as the tint is the nearest to the negative, it will permit of finer work.

A magnifying glass may be used, which will render some parts more apparent—for instance, if a very small head is being done—but for general work it magnifies the faults too much, and the general effect and modeling are lost in paying too much attention to detail.

Finally, stumps of different sizes, and a very soft camel-hair brush for dusting the surface during the operation, will complete the list of necessary implements for the retoucher.



CHAPTER II.

DIFFERENT SURFACES FOR TOUCHING ON.

MANY discussions have been raised as to which varnish gives the best surface for touching on, and many methods have been proposed. Gum-arabic dissolved in water has long been used; but there are certain drawbacks to this method which have caused it to be very generally abandoned. The solution must not be too strong, or the pencil will not mark on it; and as, in damp weather, it is never perfectly dry, working on it is somewhat dangerous. Besides, the density both of the negative and of the touches on it changes after being varnished, and gum being so easily affected by damp, the collodion films will be sure to suffer more or less.

Dr. Van Monckhoven advises the use of a varnish composed as follows: make a concentrated solution of carbonate of ammonia, to which add some

ordinary shellac; let stand for twenty-four hours, and having decanted off the clear part, add to it an equal quantity of water; heat this to boiling point, stirring all the time, and there will then be a brown solution of shellac in the proportion of eight parts to one hundred parts of water. Filter before use. This solution must smell of shellac; if it smells of ammonia it will not have been properly prepared. Apply two coatings of this to the negative after it has been washed and drained. When dry the film is brilliant, insoluble in water, and hard enough not to require any other varnish if only a few prints are required. The negative can, however, be varnished as usual, and the second coating, being quite unable to penetrate the first, will not cause any change either in the density of the negative or the touches on it.

It has become very general of late to find retouching done on the varnish itself, though there is no varnish made for touching on which quite answers the purpose; most of them do not take the pencil well enough to allow of a very fine and careful touching, while others fall into the other extreme, so that regular work is impossible. Besides, in most of the experiments in this matter, and in formulæ given, people appear to think more about getting a soft surface than to get a strong protection for the collodion film, which appears to me to be a most important thing. For this reason I do not advise the use of any cold varnish; they do not resist much against the

change of the temperature, and often cause the loss of negatives. However, as it is sometimes desirable to use a retouching varnish, the best I can recommend is Bonner's varnish, which, at any rate, has the advantage of giving a solid film. For persons who wish to make their own varnish I give the following formula :—

No. 1.

Shellac	...	...	...	125 parts
Gum sandarac	...	...	...	120 "
Resin	...	...	...	5 "
Castor oil	...	...	...	10 "
Alcohol	...	...	...	500 "

Dissolve the gum in the alcohol, let stand a day, and add the castor oil.

No. 2.

No. 1.—Alcohol	...	...	...	80 parts
Sandarac	...	...	...	15 "
Turpentine	...	...	...	5 "
Oil of lavender	...	...	...	4 "
No. 2.—Alcohol	...	...	...	22 parts
Ether	...	...	...	2 "
Camphor	...	...	...	5 "
Distilled water	...	...	...	10 "

Mix the two solutions, let stand some days, and filter. This formula is very much used, and has even been patented in the United States.

No. 3.

Gum sandarac	...	...	30 grammes
Castor oil	...	...	6 „
Alcohol	...	...	18 „

Dissolve the sandarac in the alcohol, and afterwards add the castor oil.

These varnishes are to be used hot. The greatest drawback to them is, that they depend too much on the amount of heating given to the negative. If applied too hot the surface is very brilliant, and so hard that the pencil leaves no mark; if, on the contrary, it has not been sufficiently heated, the film is soft, and scratches easily.

What appears to me to be the easiest and safest way is as follows:—Use a very hard and brilliant varnish, and deaden the parts about to be touched with the following solution:—

Pure turpentine	...	...	100 grammes
Gum dammar	...	...	5 „

Apply this to the varnish with a rather dry brush; let dry three or four hours. This may be used with all hot varnishes which do not contain castor or lavender oils.

Another method of making all varnishes fit for touching on is the following:—With a piece of cotton-wool take a little emery powder or cuttle fish, and rub

over the part to be touched till the surface becomes matt, and takes the pencil-mark easily. This operation should be done over the ground glass of the desk, great care being taken not to damage the collodion film by rubbing too hard. This way takes a longer time, and is less certain than the other; besides, the surface obtained is not always uniform, and the pencil, therefore, works irregularly.



CHAPTER III.

HOW TO RETOUCH.

BEFORE beginning to touch, the artist should examine his negative well, so as to decide what he will do to get the best effects. If the negative is faultless as to lighting, the half-tints well defined, and the shadows not too black, the work will be easy. There will only be the little inequalities of the skin to take out, to gently soften parts that always come out too hard, such as the shadows under the eye, nose, and chin.

Always begin with the highest light, which is the most opaque part of the negative. Touch out all little transparent specks, which is done by *leaning* the point of the pencil, which must be very finely cut, on to the middle of the spot. The pencil must be so used that the lines made by it are not more opaque than the surrounding parts of the negative, and put the touches as close together as possible, in order to get an even result. So that the whole shall blend well together, the point of the pencil must work over all the specks

and spots that have to be eradicated, and go gradually downwards from the forehead to the eye, then the nose, mouth, and chin, in one continuous motion.

If, when all this is done, the negative looks flat and thin, it will be necessary to think about giving effects of light. To do this, begin again at the upper part of the forehead; put a few well-rounded lines over the eyebrows, then a short line on the bridge of the nose, starting from a little below the eyebrow; then, further down, a point of light which will round off the end, and bring it well in relief; the same on the upper part of the cheek-bones, on the lips, and chin. All this must be done with a delicate hand, though the lights must be well defined by the little fine touches, always avoiding a regular hatching appearance. The touches should become less opaque towards the lower part of the face; the principal lights being on the top of the forehead, over the eyebrows, the bridge of the nose, and the cheek bone; the side of the nose, the corners of the mouth, and the cheek being the middle tints; while under the eyebrows, the eyes, the line indicated by the aisle of the nose, underneath the nose, and the line of the chin, are in the deepest shadow.

With old people some lines and wrinkles may be taken out, but not all of them, or else the character of the face is lost.

With very thin faces avoid working too much on the hollows, on the forehead, temples, and cheeks, or the face will become too rounded, and the resemblance gone.

All these things must be determined upon by examining the negatives very carefully from different distances, as it is impossible to judge of the effect of the touches, and the general harmony of the picture, by looking at it closely.

It sometimes happens that the shadows under the eyes are too dark to be worked upon by the pencil. In this case a brush must be used, and indian ink mixed with water. The brush must be very finely pointed, and with little colour in it, and nearly dry; as, if the colour is put on very wet, the density of the work would change in drying, and the retouching would be very rough, and take longer to do. This mode of touching may be used with advantage on places where the pencil alone does not give a sufficiently strong tint.

Negatives that have been much intensified with pyrogallic acid are very difficult to work upon, on account of the opacity of the lights, and the hard transparency of the shadows. The same may be said of negatives taken with a weak silver bath, or under-exposed ones. As no one is likely only to have to do with perfect negatives, it will be useful to know what are the best means to be employed in order to improve imperfect ones. In the first place—as usual—a very black pencil must be used, also a brush and indian ink, as just described, for the transparent shadows. Clean the back very well, and pour on it, in the same

manner as if collodionizing a plate, the following solution :—

Gum sandarac	...	...	30 parts
Gum mastic	...	...	30 "
Sulphuric ether	...	...	500 "
Pure benzole, from	...	150 to 400	"

The quality of the texture thus obtained depends on the quantity of benzole added. When dry, this should give an even white surface, almost like very fine ground glass, on which the pencil will work beautifully, and the touching, done with great discretion on the back of the negative, gives a very soft appearance to the prints. A finer work will be done on the parts which it has been impossible to finish on the collodion side. Thus, in places that are too transparent—in the hair, for instance, or the beard—put in a few lights; under the eyes and nose soften the shadows, which are always too strong in that kind of negative; and if the forehead, the cheek, and the lighted side, be too dense, with a pen-knife scratch the varnish at these places, so that they may print through quicker, taking care to leave soft edges to avoid hardness in printing, which is easily done by cutting the outlines into indentures unequally pinked. By these means it will be easy to improve bad negatives, but the density will be then greater. The lighting of the clothing must now be proceeded with. All the parts requiring lighting must be gone over

with a stump dipped in lead powder, following all the folds of the drapery, &c., applying the end of the stump to the middle of the part to be lit, and then softening off the edges with another larger and clean stump. This part of the work may also be done with a brush moistened with indian ink. The results thus obtained are the same, therefore the retoucher can choose whichever method he prefers.

Sometimes the white varnish does not give the required opacity; if so, the same varnish, to which add a few drops of a solution of iodine in alcohol, may be used. This will give a more or less yellow film, through which the light will pass slowly. Retouching can be done on this surface either by means of a stump or brush; if the latter, the tint of the indian ink may be softened down by tapping it with the end of a finger. These two varnishes are very hard and solid when dry.

Some work may be done with the pencil on the neck, shoulders, arms, and hands; but none of the lines of muscles should be touched. If these parts are too flat, they may be strengthened in the way previously described.

Any little spots or holes in the negative should be touched with indian ink or light blue. It will be easily understood how useful this kind of touching may be when well done, as by means of it passable, or even bad negatives, may be made to give almost perfect prints.

Another way of giving a good effect to a negative is to dissolve some red aniline dye (fuchsine) in alcohol; add a few drops of this, according to the strength of tint desired, to a plain collodion; pour this on the back of the negative, removing it with a knife from the parts to be kept transparent. This method is not so good as the two varnishes previously described, because the surface is too tender to be worked upon by brush or pencil, and very apt to become scratched or rubbed off in printing; however, it may be used to get a considerable density on a very thin negative. In this case the back of the negative is covered with a layer of the solution, and when it is dry, remove it from the most opaque portions, and varnish all over with benzole varnish, which will solidify the other, and give a good surface for touching either with stump or brush.

CHAPTER IV.

COPIES.

NEGATIVES taken from old faded photographs are sometimes very difficult for retouching. Negatives enlarged from photographic cartes always have a very granular and bad effect, and this is inevitable, being the texture of the paper in the original. The best thing to do is to use a retouching varnish, then work with a pencil over all the parts that will take it, and finish off with a brush.

It is better to aim at general effect than great fineness in touching, for it will be found impossible, without going through very long and complicated work, to entirely get rid of the grain of the paper. Also the retoucher should not have his eye too close to the negative. The transparent spot must be filled in by means of very fine lines drawn in the direction of the spots; then put in the lights without exaggerating them, having, if possible, the original at hand to compare with. If the negative is so flat that neither brush

nor pencil will give the desired effect, use for a last operation the benzole varnish, as previously described.

The reproduction of Daguerreotype is less difficult, the negative being free from all texture; and as the polished silver plates show a very bright surface to the light, there will only be the modelling and general softening to be done. But sometimes the figure does not stand out well from the background. In this case the reproduced negative would be very much better, giving greater contrasts.

If the background is too dark, and it is thought desirable to lighten it, coat the back of the negative with a white or yellow varnish, leave it to evaporate for an instant, and, before it is quite dry, run a line with a pen-knife all round the figure, from which remove the varnish, only leaving it on the background, which will then print much lighter. In removing the varnish, it must be remembered that it is better to leave a little line behind the figure than to scrape away too much. If it is only found necessary to lighten one side of the background, use benzole varnish, and then the stump, on the place wanted, taking care to soften the edge well by rubbing with the finger or cotton-wool.

If, on the other hand, a white background has to be changed into a black one, or any ugly accessories have to be removed, proceed as follows:—Put the negative on the touching easel, and with a needle stuck into a piece of wood follow the outline of the figure with

great precision, scratching through the collodion film. In this operation the line should rather impinge upon the background than upon the figure. If the face is turned profile or three-quarter face, the operation is very delicate, and wants the greatest attention. The safest way will be to have the arm very firmly supported. In going round the hair, the film will be scratched into indentures as fine as possible; for the drapery, &c., less delicate work is required. When the needle has been all round the edges, take a rather thicker point, and enlarge the line drawn by the needle. It will then be easier and quicker to remove all the rest of the background with a pen-knife. If this can be done on the collodion only, the surface, being soft, will take much less time, and the negative can afterwards be varnished in the usual way. If it has been done on a varnished surface, the rest of the film must be cleaned off with a few drops of alcohol rubbed on with some silver paper. This done, the whole line must be softened, as the needle will have left a hard, sharp line. With a fine brush and indian ink stipple lightly all round, doing it with the point of the brush, and leaving a tiny space between each touch. This work must be done finer and closer as it approaches the face, and requires as much care as the scratching with the needle, as it is to this stippling that will be due a softness of outline in the prints which will make them resemble those done with a natural background. The back of the negative is then covered

with either a white or red varnish, according to the effect wished for. One of these varnishes should always be used to soften the outline, and make the background less hard.

Another way of getting black backgrounds is the following:—Cover the whole of the background with a deep yellow colour mixed with a little glycerine, having first of all with a brush drawn round the outline of the figure, and let dry. Print a copy of this, of which the background will be quite white; then cut out from it the figure, which is used as a mask, by laying it on the negative while the background goes on printing. This is not so good a way as the other. In the first place, it is not easy to paint the line of demarcation perfectly; and then, being obliged to mask each print, it is almost impossible to get all the prints alike.

An intelligent artist who, after a little practice, is able to utilize these various simple methods, will be surprised at the results he gets. Besides, what I have said about copies in particular, applies equally to all bad negatives. There are times when it would be very desirable to be able to render, by means of one of these methods, if not perfect, at least satisfactory, a negative which would have been judged unable to give a tolerable print, even submitting it in printing to the most complicated manipulations.

CHAPTER V.

POSITIVES.

POSITIVES that are taken in order to get enlarged negatives from are sometimes imperfect ; it is advisable to give them some retouching which would give great facility for obtaining large negatives. If, for example, there was a scratch on the collodion of the small negative, and that had been touched out with too opaque a colour, that would make a white place on the positive. In the same way, a very hard negative would give, in the positive, faces too white, and drapery, &c., too black.

The work is done the same as in a negative, only in a reversed way, as if one were touching a print ; the mark of the touching, whether done by brush or pencil, tending to hinder the light going through in the spot. When a positive is being taken, the parts not receiving light remain perfectly white—that is to say, transparent ; in copying this positive, all these transparent places are at once penetrated by the light, so that all

effects existing in the original negative will be exactly reproduced in the enlargement. It will, then, be easily understood that by touching on all these transparent places on the positive, the defect will be got rid of as it will be wanted—defects, besides, which it would be impossible to remove on the enlargement. It is only under these circumstances that I advise retouching on the positive; because if the original negative is perfect, and also the positive from it, no touching will be required.

It is even better not to touch a small negative that is going to be enlarged, but to do it all on the enlargement, that being easier and quicker. If the positive requires much touching, it is best done on gum. The negative, when fixed and washed, is covered with the following solution :—

Gum-arabic	...	...	...	6 grammes
Water	...	...	...	100 „

If the positive is to be kept, it is better not to gum it, but varnish with a retouching varnish. I should not advise to use hard varnish. As there comes sometimes a sharp line of demarcation where the brush stops, this line is never visible on the print, and is hardly seen on the small negative; but on the enlargements it might show very much, and necessitate much labour in touching out. Still less should emery powder or cuttle fish be used, which always give

lines; all these means will be in this case completely eliminated.

The touching should be done with great moderation. The half-tones required must be put in on the positive, leaving intact those parts which have been touched on the negative. It must be borne in mind that the negative is worked for obtaining the lights, and the positive for obtaining the shadows—that in the latter, in short, the effect is direct; the work will be consequently easier, as every touch shows the produced effect. The touches should be a little less deep in tone than the negative.

Amongst all the methods that I have described for the improvement of negatives, the retoucher will select the one which appears to suit him best.

CHAPTER VI.

ENLARGEMENTS.

It has not always been usual to touch enlarged negatives, and each print had to undergo a long and tedious operation, which, after all, very often gave but poor results. Besides, the colour of the touches always remained the same, and as silver prints sooner or later always fade or turn yellow, the results were very bad. It will be found always best to do the touching on the negative.

The best negatives for this kind of work are very thin and transparent ones; that is to say, it is much better to have an under-exposed negative, provided it is not hard, than one full of detail, but fogged by over-exposure.

Either gum or varnish can be used. The retouching should be done boldly with long lines; endeavouring to give an even surface, without at first going too much into the modelling. The shadows should be

carefully kept; only going over the too transparent spots which are reproduced from the small negative. In an enlargement from a small photograph, the texture coming from the original must be eliminated by means of the pencil or the brush. Some touches largely done with a big pencil will draw some lights in the hair, the outline of the eyes will be sharpened, the pupil rounded, the lips accented—in fine, the lights will be put in; but in this case it will be better not to work in the same way for these large negatives as is usually done for the small ones. It would take a very long time to produce the necessary effect by means of the pencil alone. The best way will be as follows:—Take a sheet of very fine tracing paper or *papier vegetal*, damp it with a sponge, and having run a line of gum round the back of the negative, stick the paper to it, and let it dry. When dry, the paper should be perfectly flat and smooth, and will give an excellent surface for touching on. Proceed to touch as on ordinary negatives with the stump and black-lead powder, softening down the hard shadows, taking care always to keep the half-tones. This can all be done in a few minutes by a practised retoucher, and, as it is not difficult to do, only requires a little habit and taste.

The lighting of drapery is done in the same way, the lines of the folds strengthened always keeping a gradation of tones. The shadows should be left as much as possible alone, as very little retouching is necessary on them. When the negative is

transparent, and not much intensified, the tracing-paper alone softens it very much. It will be seen that I here recommend what for small negatives I advise should not be done. The greatest pains should be taken to get small negatives that require as little touching as possible, because work that is done on the back of the glass gives to small prints a soft and mealy appearance which is very unpleasant. But when we come to enlargements, however good the negative is, there are always portions of it that require some touching—either lights that are not light enough, or shadows that are too hard, according to the value of the original; it is therefore much better to have to correct parts that are too transparent, rather than those which are too opaque, and the thickness of the glass is not appreciable in large negatives, and touching can be done on both sides of the glass without any loss of sharpness and vigour being apparent in the print.

The benzole varnish may be used instead of tissue paper, especially if the glass on which the negative is taken is not quite flat, and worked on in the same way with a stump. The effect may be judged of by looking through the negative with the collodion side towards the eye.

Both sides may be varnished, if required, with benzole varnish, as the touching is more easily done on this ground surface, and a greater softness is produced.

There is also a plan, which has been much talked of

lately, of putting tissue paper on both sides of the negative, and working on both the papers.

Each of these methods will be found successful, provided the negative is thin. Its density should determine which plan is to be followed: in fact, it is a good way to decide beforehand that the negative shall only give the dark shadows and half-tones; that the varnish or tissue paper shall give the whites; that the stump or pencil shall give the highest lights. The result will thus be obtained in a far simpler and better way.

But where there are large, hard negatives, neither of these methods is feasible. They must be treated as I have recommended that hard negatives should be. The whole of the print will not be so harmonious, though obtained with greater difficulty; for I repeat, that retouching done as I have described, and on special kinds of negatives, offers no difficulty, and enables one to get an excellent print, even from a very small and very bad original.

CHAPTER VII.

LANDSCAPES.

IN landscapes the sky is very often not light enough; according to the moment when the negative has been taken, the detail of foliage or building is somewhat lost on it, while a more opaque sky would improve the whole, and give more relief. This is what should be done:—After the negative is varnished and dry, go round the edge of all the picture part, whether foliage or buildings, with a brush and yellow paint, taking care to keep all the details, without covering any of them. The yellow will be mixed with a little gum and glycerine. When the outline is drawn, cover all the rest with a large brush. The same thing should be done also on the back, so as to remedy any inequality in the colour if it has been put on too thin. Besides, I advise not to put it on too thick, for fear of its splitting up, and carrying away the collodion film with it. Bates' black varnish can also be used for

this purpose; it does not crack, even when exposed to the sun. The following formula is also very good:—

Spirit of turpentine	...	1,000	parts
Bitumen of Judea ...	...	100	„
Wax	... ..	40	„
Black	... ..	20	„

Brushes used for this work should be kept in a bottle containing a little turpentine. The bottle of varnish must be well corked to prevent evaporation.

A print taken from a negative treated in this manner will have a perfectly white sky, which will have a hard and disagreeable effect; it must be tinted afterwards in printing, taking care to keep the horizon line lighter than the rest; or even some clouds may be printed in from another negative: the print will be softer, and the effect more artistic. It is also possible to get clouds without any double printing by putting tissue paper on the back of the negative, and drawing some clouds on it. Some transparent parts should be left to give effect. Where touches have been put on too dark, they are easily removed by rubbing with a little crumb of bread. This does not require very fine work; the thickness of the glass will soften down what may appear too coarse. By following this method there is no risk of spoiling the outlines, and, what is of great importance in winter, the printing does not take so

long. Indian ink may be used instead of the stump, as well as benzole varnish instead of tissue paper.

In landscape negatives, as well as in other negatives, all hard shadows should be softened, and the lights strengthened; but all the work should be done on the back of the glass. In foliage negatives taken with a bright sun, the nearest trees are often wanting in detail, while the more distant ones are quite sharp. Prints from these negatives have an unpleasant effect, the different lines of distances being too distinctly marked; this may be improved by touching with a brush, not too pointed, and Indian ink or blue, representing some leaves according to the lights which are already indicated. It is impossible to distinguish the trees retouched in that way from the others finely obtained on the negative.

Finally, if there are any strong lights to be put on negatives for obtaining effects of snow, it is best done on the back of the negative, either on tissue paper or white varnish.

The same thing may be done in negatives of clouds which are sharply lighted by sunlight. If the shadows are too transparent and the lights too hard, put in some half-tones, and remove the varnish from the lights. If, on the contrary, the light parts are weak, strengthen them either with a stump or brush, and remove the varnish from the shadows. For positives and enlargements the same work has to be done, and always in the same way.

It will be seen, then, that in the art of retouching negatives it is only in the first step that any difficulty is to be met with, because, being the most important, all the rest follows from it, and is, so to speak, only the same thing differently applied. Therefore, with the knowledge of these few various methods, and a little taste and use, one may always be certain of getting good results.

